Tip or Technique

# Connecting TM1 to Various Third-Party Data Sources

Product(s): TM1

Area of Interest: Development

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# 1 Introduction

## 1.1 Purpose

This document covers various topics on using the TM1 API and connecting TM1 to various data sources. The document is a combination of various older documents from the TM1 knowledge base.

## 1.2 Applicability

Applies to TM1 9.0 and prior releases.

## 1.3 Exclusions and Exceptions

Some of the third-party software addressed in this document is several releases behind the current release and the current releases of the software may not work with TM1 in the manner described in this document.

# 2 Optimizing Performance Using the TM1 API

The TM1 API is designed to operate on a network. Accordingly, it provides facilities to maximize packet size and thus optimize performance.

## 2.1 Pending Values Overview

With the API you can issue a number of requests before any actual values are returned. In fact, API functions normally return a pending value. Such pending values are not resolved (assigned an actual value) until the next packet is sent to the server and the answer is received.

You can use pending values to get other values without waiting for the pending value to be resolved. Let's say that you ask for the handle to a cube, and then you want to know how many dimensions it has. This requires two calls, with the result of the first used as an argument to the second. The API allows you to pass a pending value to the second function. The server has no problem dealing with the request because, unlike the client, it already "knows" the result of the first function before it evaluates the second one.

All pending values are resolved any time you request the type or the contents of a value capsule. When this happens, the API sends any partial request packets to their respective servers and stores the answers received in the appropriate value pool.

## 2.2 Using Pending Values to Optimize Performance

Pending values are of special value when retrieving large arrays of data. Suppose you want to retrieve the names of the elements of a large dimension. In order to do so efficiently you should implement the following pseudocode:

- Given the handle to the dimension, retrieve the size of the dimension using the TM1ObjectListCountGet function for the TM1DimensionElements list property.
- Resolve the value N, and allocate an array of value handles of size N.
- For I = 1 to N, do the following:

Retrieve the handle of the $I^{th}$ element of the dimension using TM1ObjectListHandleByIndexGet.

Using the element handle, retrieve the element name using TM1ObjectPropertyGet for the TM1ObjectName property, and store the value handle in the array.

- Once the array is filled, you can retrieve the name of the $I^{th}$ element using the TM1ValStringGet function on the corresponding array value.

Using this technique, there will be two "round trips" to the server: one to retrieve the number of elements in the dimension, and one to resolve the series of requests for the elements. Note that depending on the number of elements in the dimension, there may be a need for more than one set of packets to be exchanged, but typically this would be a fraction of the number of packets required if the values are resolved one by one.

## 3 How to setup a TI process to recognize ASCII file on UNIX box

When running a TI process from a client machine you have to remember that the TI process is "server" based. What this means is that when you try to create a TI process using and ASCII file you have think "from the server". If the ASCII file is located on your own PC, let's say in C:\temp directory, the TM1 server will most likely not be able to see it C:\temp if you use an absolute directory path.
What is the fix? You can browse Network Neighborhood and use the UNC path to your ASCII file so the TM1 server on the other machine will be able to see it.

EX: \\Cirillo\ddrive\tm1_data\TI_examples\peerless\colors.csv

UNIX:

When trying to access an ACSII file from a UNIX server, ideally, TM1 would be able to see UNIX folder directories through NT. This would require some background software, such as SAMBA, be running so you could go through Network Neighborhood and see the UNIX server and folders on that server. This however is not the case in most instances. The fix for this is an ad hoc work around.

First you need to be able to PING the UNIX box from your PC, then what needs to done the following:

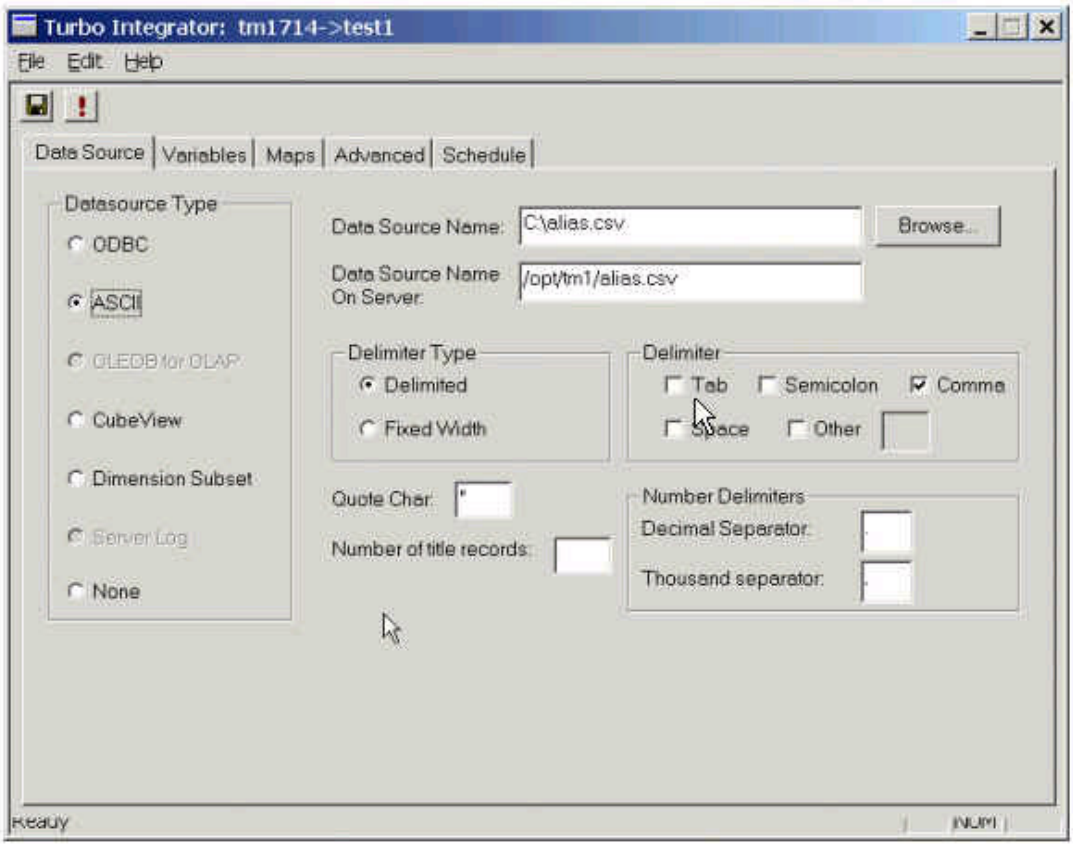
Take a snippet or a few lines of the ASCII file that is on the UNIX side. Best way to do this is using the head command

EX: head -2 alias.csv > alias1.csv

This takes the first 2 lines of the alias.csv and outputs them to alias1.csv.

Take alias1.csv and copy it to your PC where you are setting up the TI process. Rename it back to alias.csv on your PC because that is the name of the true ASCII

file to which you will be using on the UNIX side. In the TI process for Data Source Name place your PC direct path to alias.csv. For the Data Source Name On Server place the UNIX path to where the alias.csv file resides. Here is an example:




The reason for these steps is so that the TM1 client can set the right parameters for the whole ASCII file located on the UNIX server. You have to go through these steps for the TI process to recognize an ASCII file that is not on a Windows network to where you can map a drive.

## 4 Connecting InSight to TM1 Server through TM1 API

The advantages of connecting InSight to the TM1 server through the TM1 API and not the OLE DB for OLAP.

- You will get the full functionality of TM1
- You gain "write back" ability
- It is faster because you are connected directly to the TM1 API

Steps:



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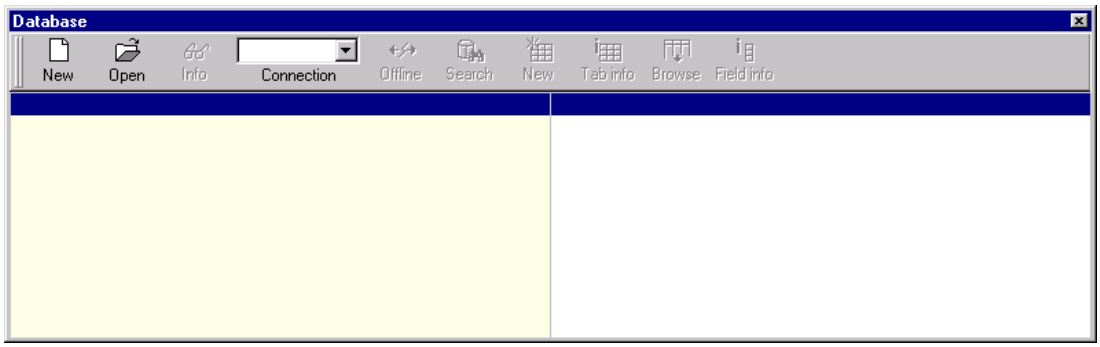
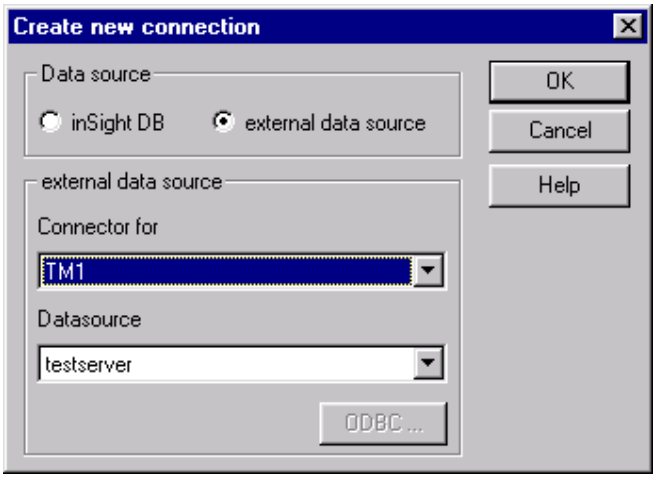
1. Start TM1server
2. Fire up Insight

The following dialog box will appear:




3. Click on New to create a connection script.

4. On the next dialog box click on the "external data source" - cycle the Connector for to TM1 and the
   Datasource should automatically fill in.




5. Click OK and InSight creates a login script for you



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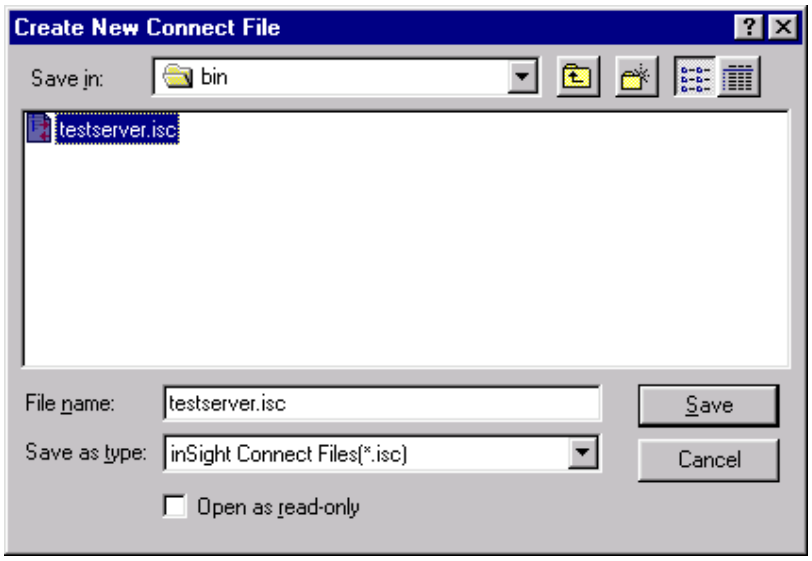
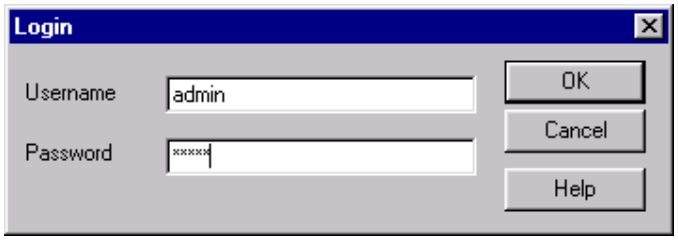
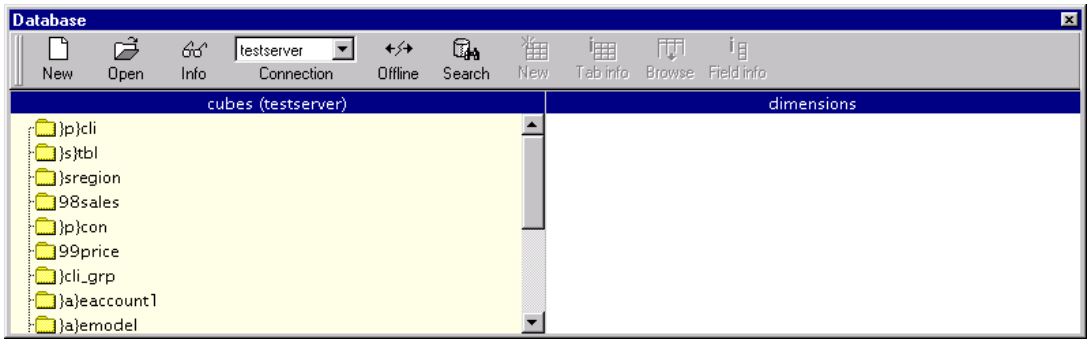



6. Click save and a login dialog box will appear




7. Type in Username and Password and click OK

8. If you are logged in you should see something similar to the following:



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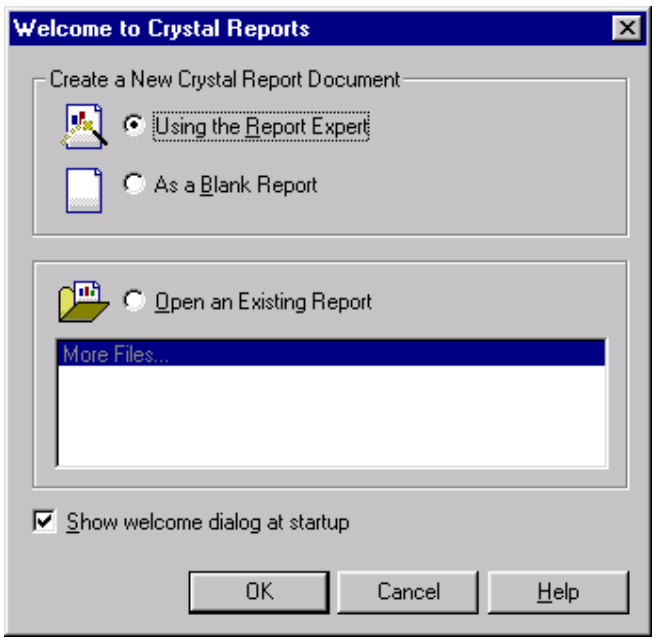
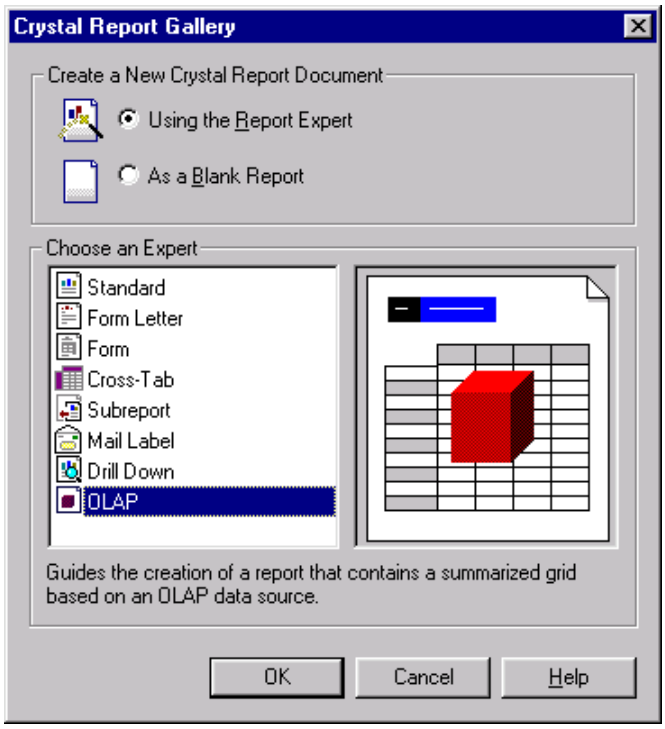
## 5 How to connect Crystal Reports 8.5 and TM1

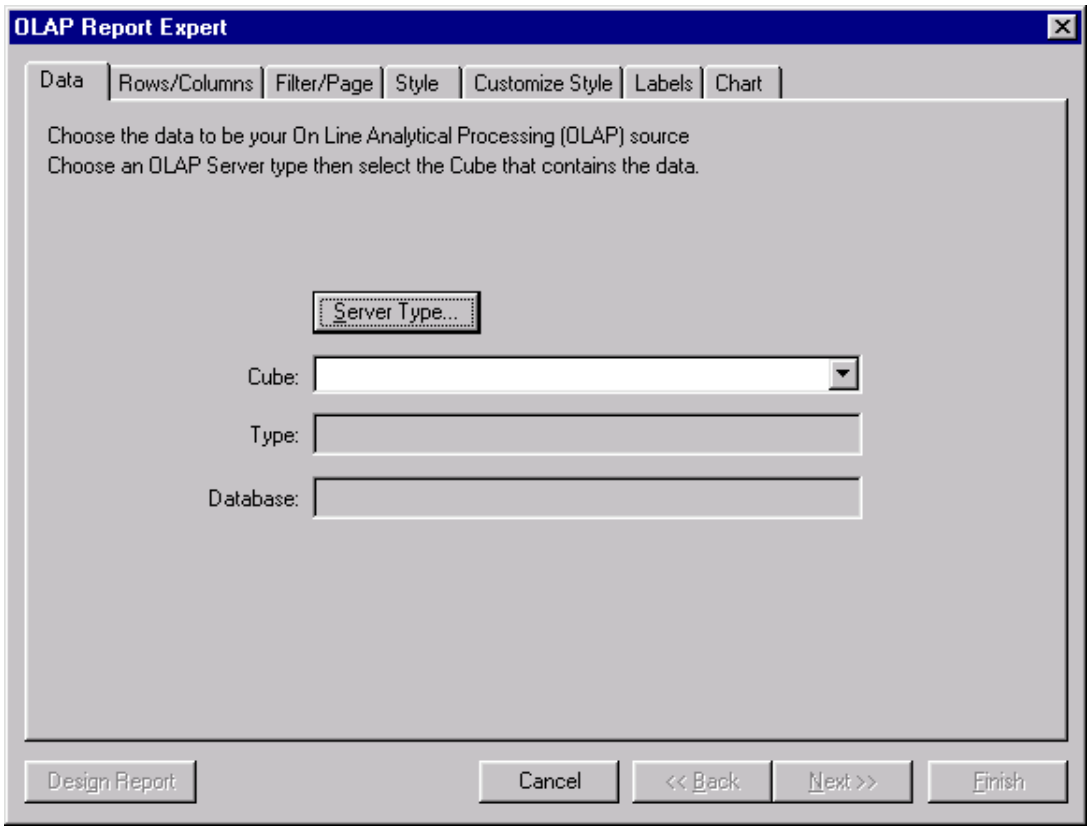
1. When you start Crystal Reports 8.5 you should get a screen that looks like this:




2. Click on "Using the Report Export" and hit OK
3. Next screen will give you a list of report expert options. Click on OLAP



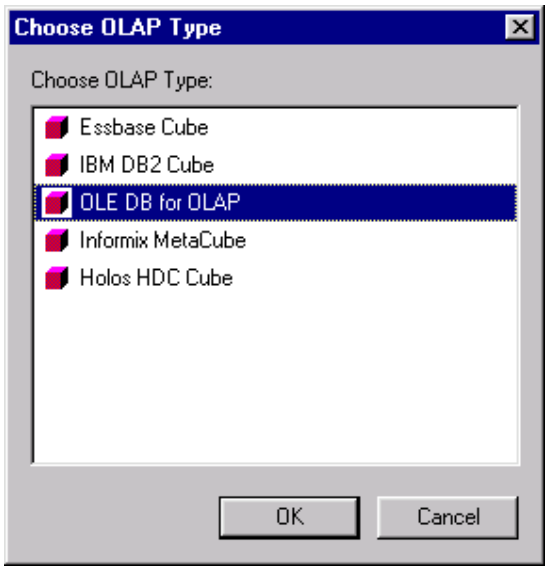

4. Once the expert report option has been chosen the following screen will appear:




4. Click on the

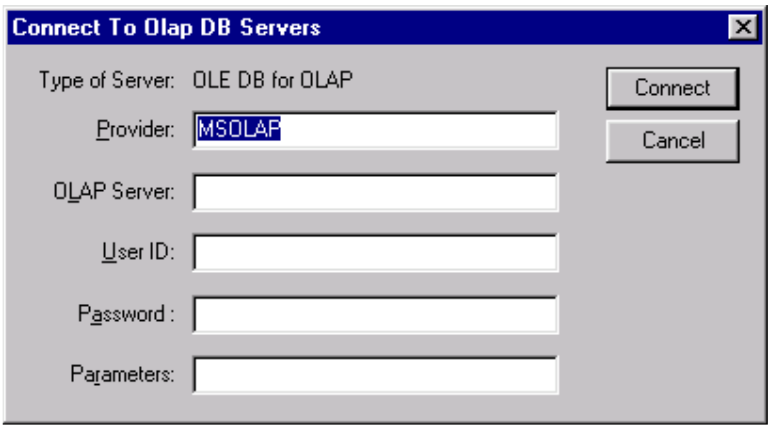
button and choose the OLAP type

    - **MUST choose OLE DB for OLAP**




5. Once

has been selected the following should appear:




6. **YOU NEED TO CHANGE THE** MSOLAP TO TM1OLAP

   - **enter tm1 server name**
   - **enter login and password for the tm1 server**



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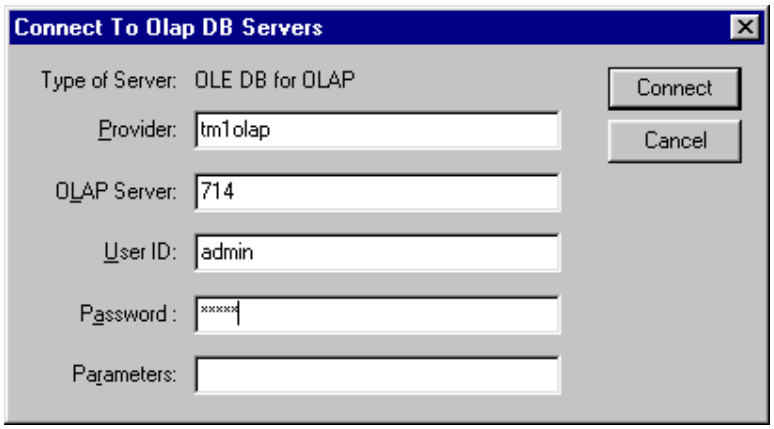
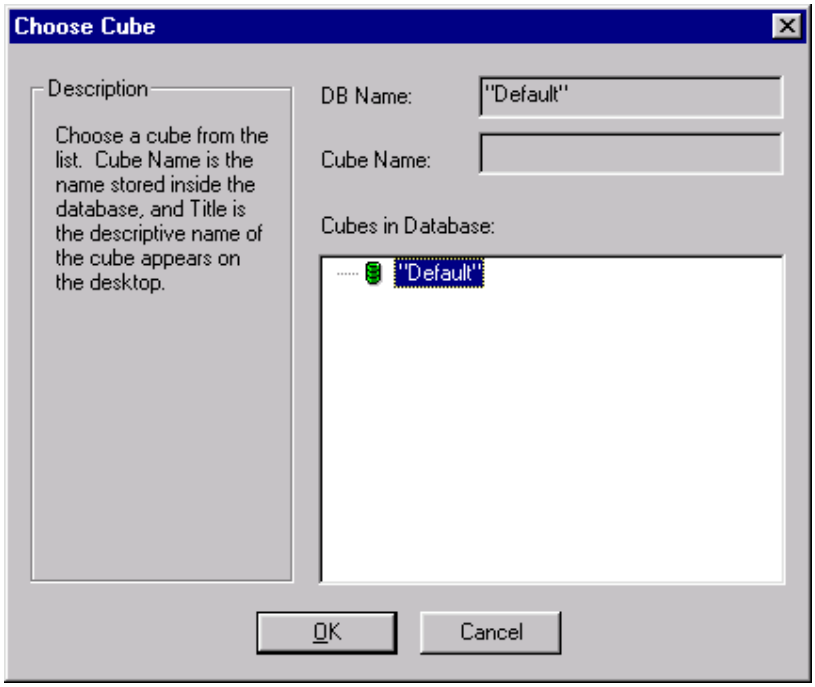
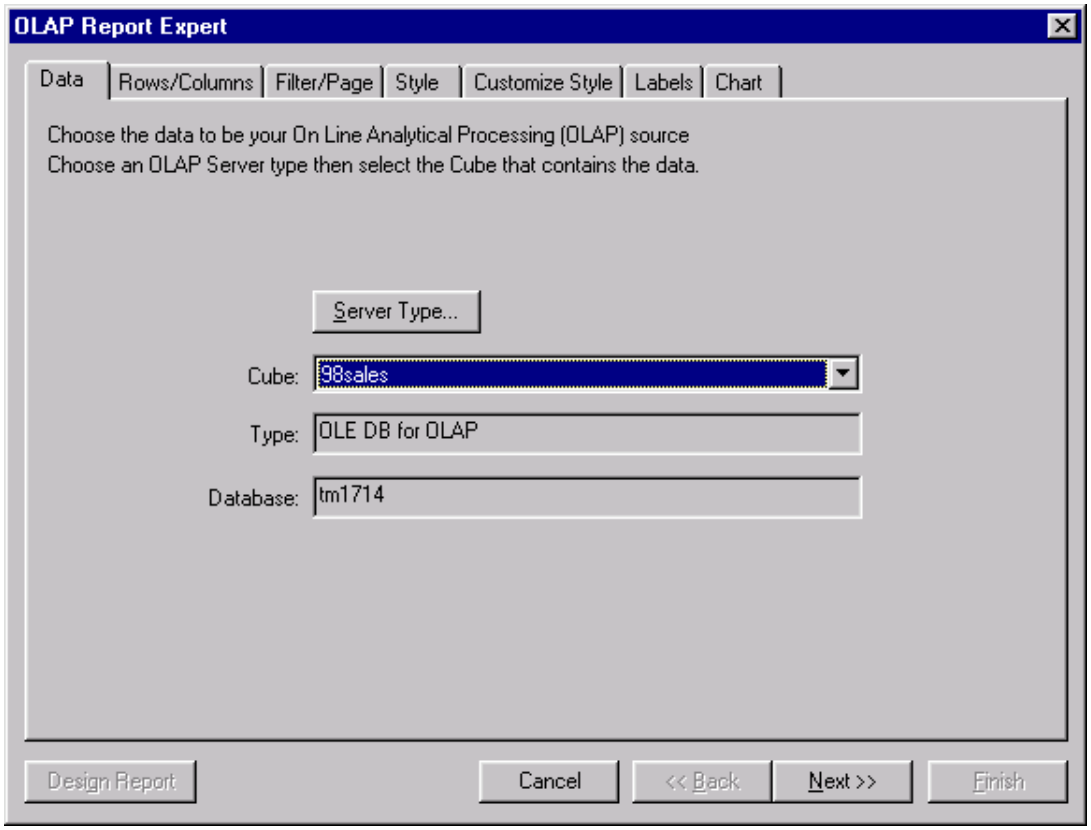


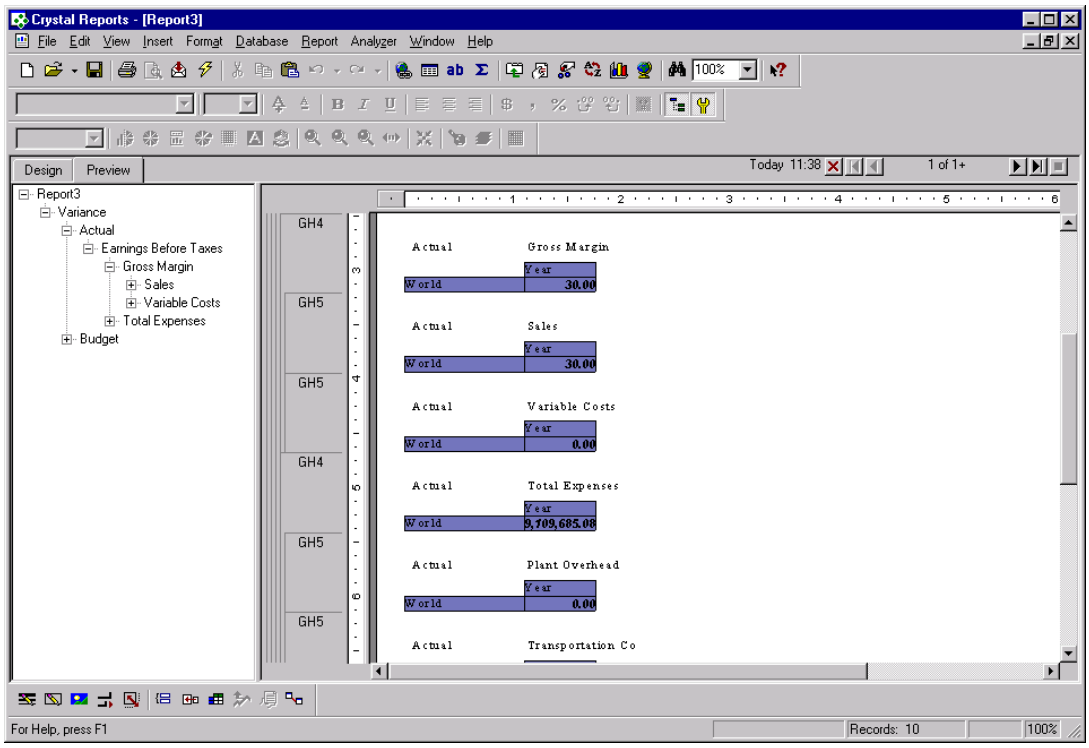

7. Next screen choose and click OK.




8. From here on you get to choose what cube you want to work on and how you want to design your Crystal Report using Tm1 data.


OLAP Report Expert
Data
Rows/Columns
Filter/Page
Style
Customize Style
Labels
Chart
Choose the data to be your On Line Analytical Processing (OLAP) source
Choose an OLAP Server type then select the Cube that contains the data.
Server Type...
Cube:
98sales
Type:
OLE DB for OLAP
Database:
tm1714
Design Report
Cancel
<< Back
Next >>
Finish

Example:




## 6 How to connect IBM Cognos PowerPlay 6.5 and TM1

Steps:

When loading PowerPlay make sure you load the OLE DB piece. To do this you must choose "custom" install.

Once this is done you will have these 2 icons to place on your desktop

1. To establish a connection between PowerPlay and Tm1 first start your Tm1 server.
2. Then click on the PowerPlay Connect icon



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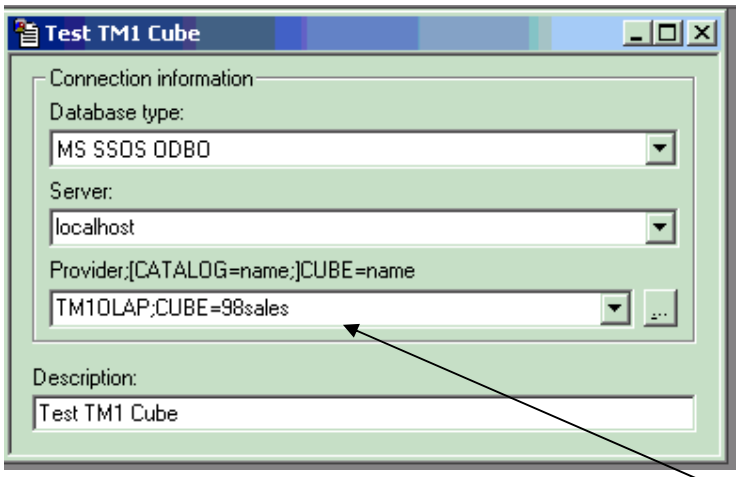
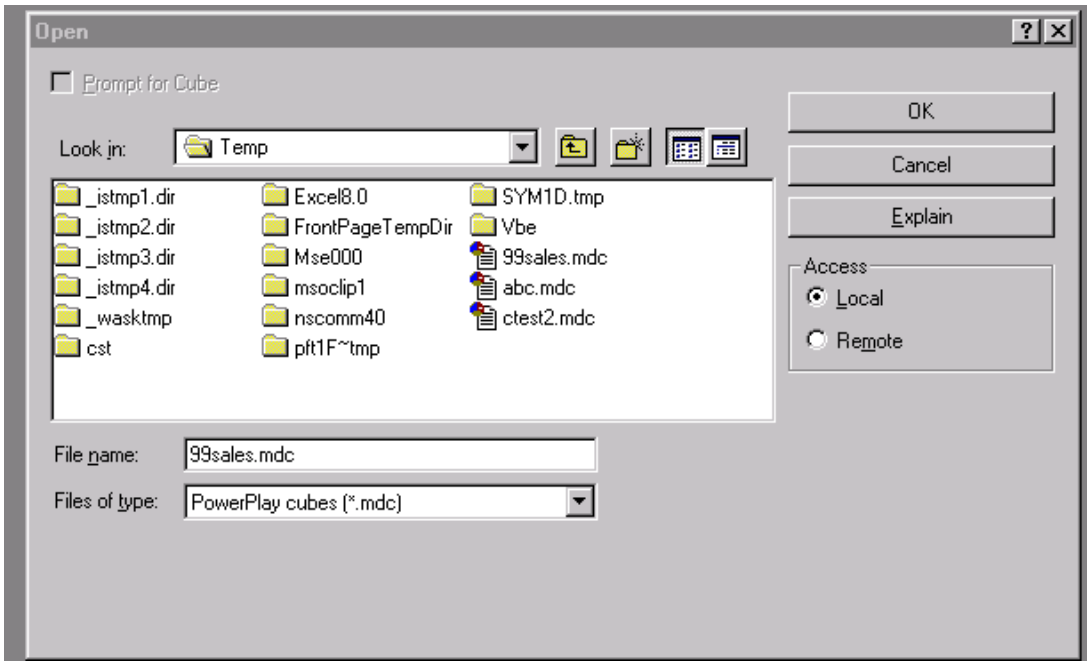



3. Previously you could connect to TM1 Server from Powerplay Connect and pick the cube, in 6.6 you can't do this, you have to type the statement manually

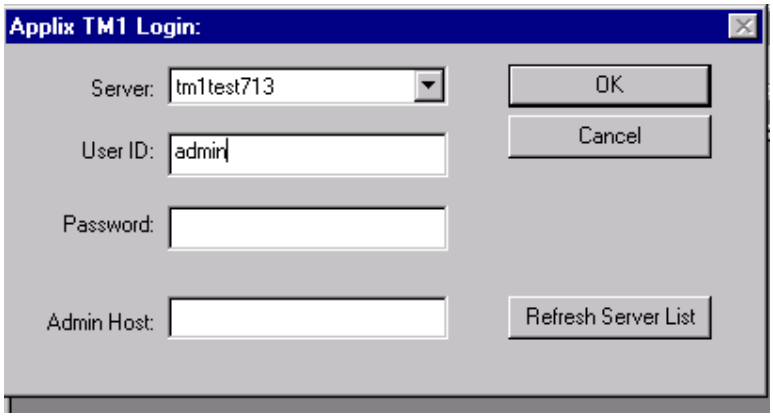
**NOTE: I like to name my .mdc file the same as my cube name.**

4. Now click on your Power Play icon

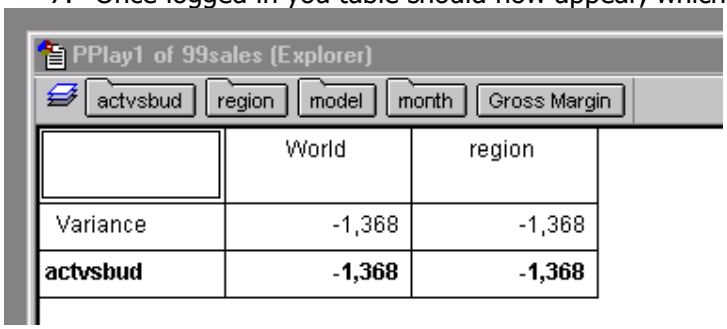
5. Click on file->open and choose the 99sales.mdc

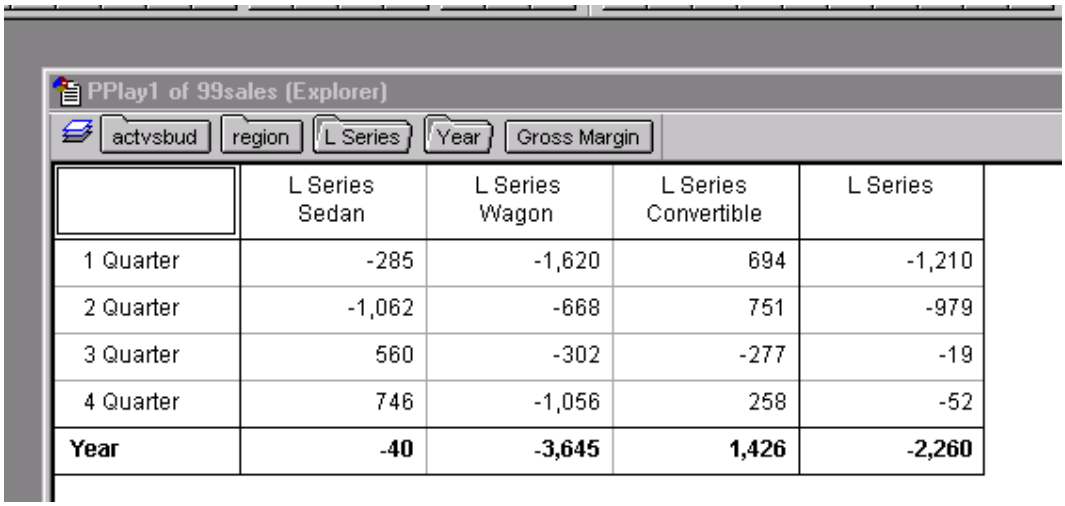



6. A login dialog box should appear with your Tm1 server name set, just type in your login and password for the Tm1 server




7. Once logged in you table should now appear, which you can now manipulate.

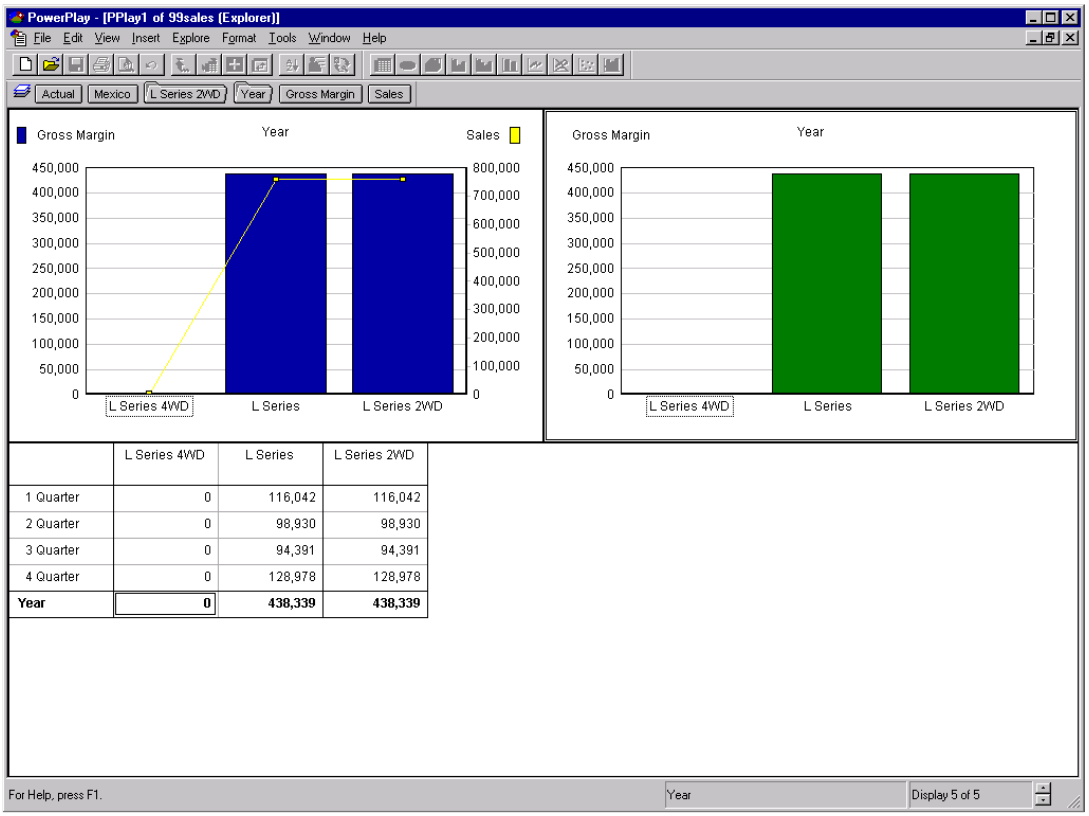




PPlay1 of 99sales (Explorer)

actvsbud | region | L Series | Year | Gross Margin

| | L Series Sedan | L Series Wagon | L Series Convertible | L Series |
|---|---|---|---|---|
| 1 Quarter | -285 | -1,620 | 694 | -1,210 |
| 2 Quarter | -1,062 | -668 | 751 | -979 |
| 3 Quarter | 560 | -302 | -277 | -19 |
| 4 Quarter | 746 | -1,056 | 258 | -52 |
| **Year** | **-40** | **-3,645** | **1,426** | **-2,260** |




| | L Series 4WD | L Series | L Series 2WD |
|---|---|---|---|
| 1 Quarter | 0 | 116,042 | 116,042 |
| 2 Quarter | 0 | 98,930 | 98,930 |
| 3 Quarter | 0 | 94,391 | 94,391 |
| 4 Quarter | 0 | 128,978 | 128,978 |
| **Year** | **0** | **438,339** | **438,339** |

## 7 How to connect Brio and TM1

This was tested this using 7.1.1sr4 patch, TM1 and Brio communicated successfully 7.1.1.84 release will work as well.



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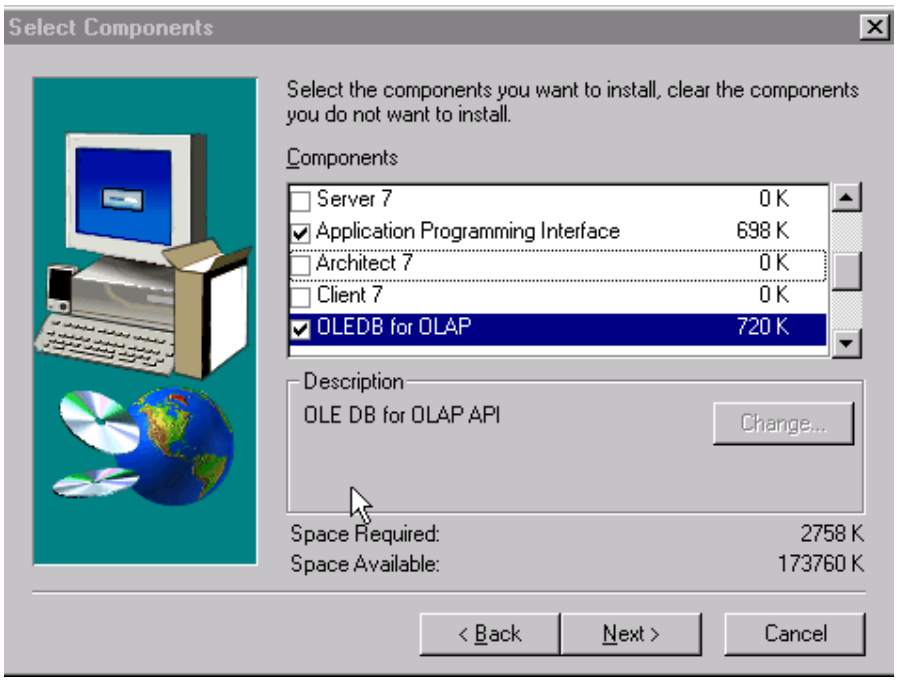
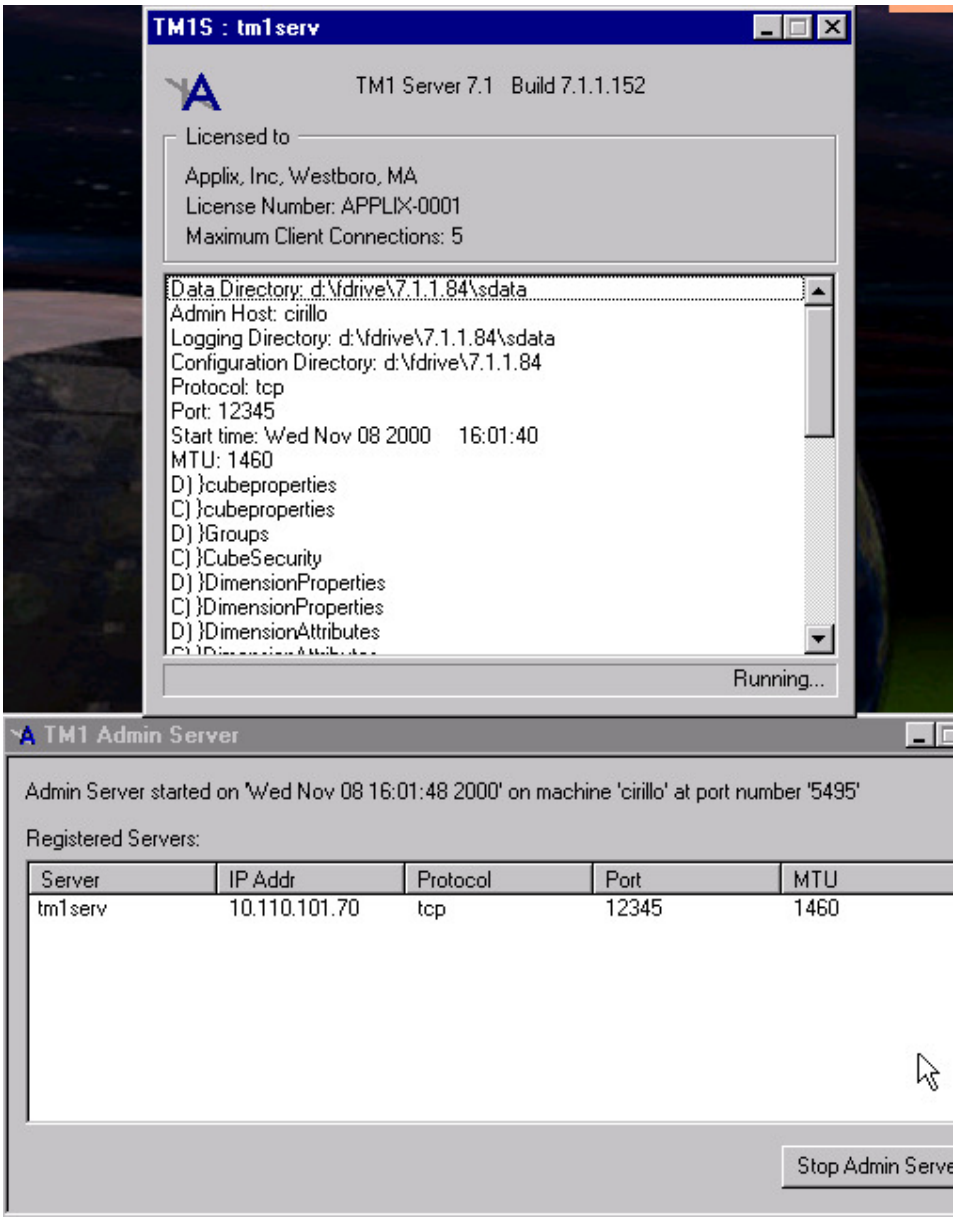
Here are the steps and things to be concerned with.

1. When install TM1 make sure you install both the API and OLE DB pieces from the install program.

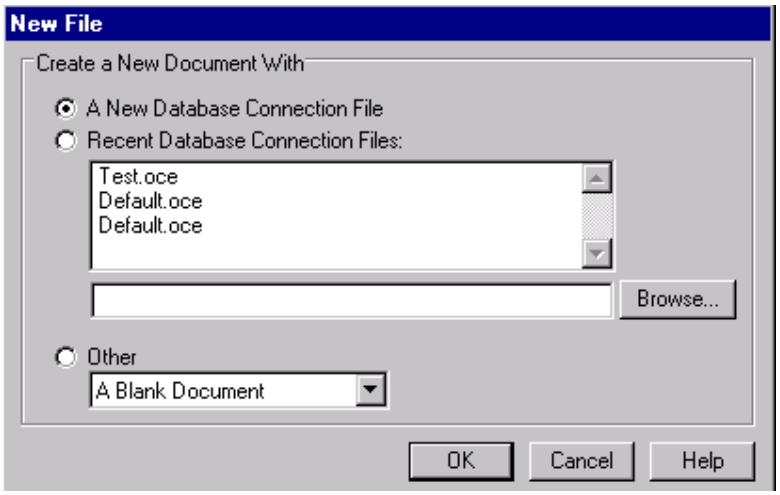



The file that basically makes or breaks this connection is the **tm1dasrv.dll** which Will be located in the \tm1s7\programs folder on your PC. Without this file you will not be able to make any type of connection to a 3rd party product through OLEDB.

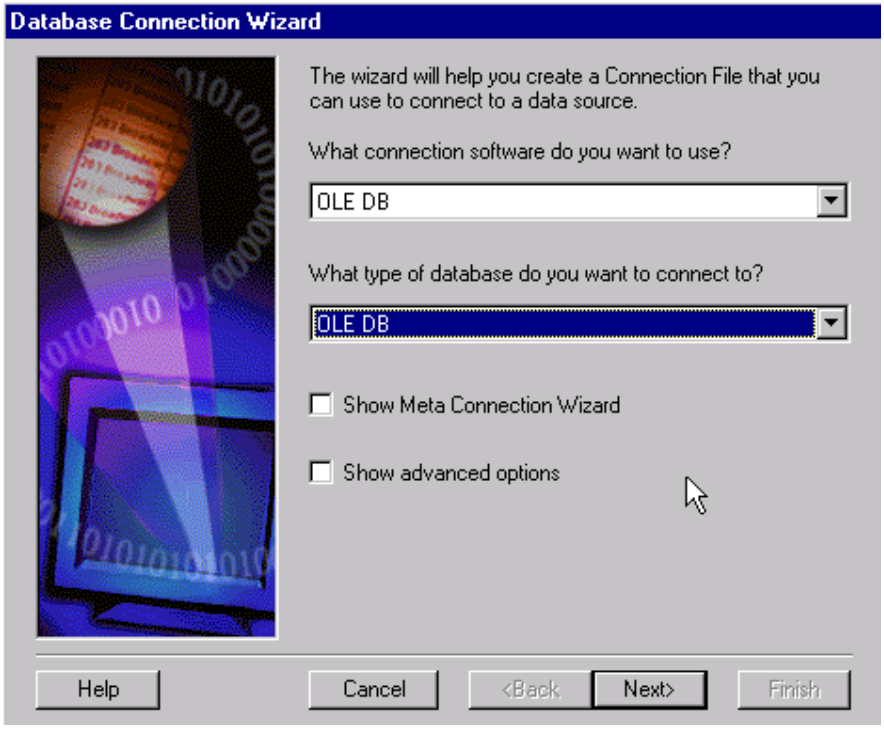
2. If everything is install correctly then all you need to do is make sure that a Tm1 server is running and an Admin Server.



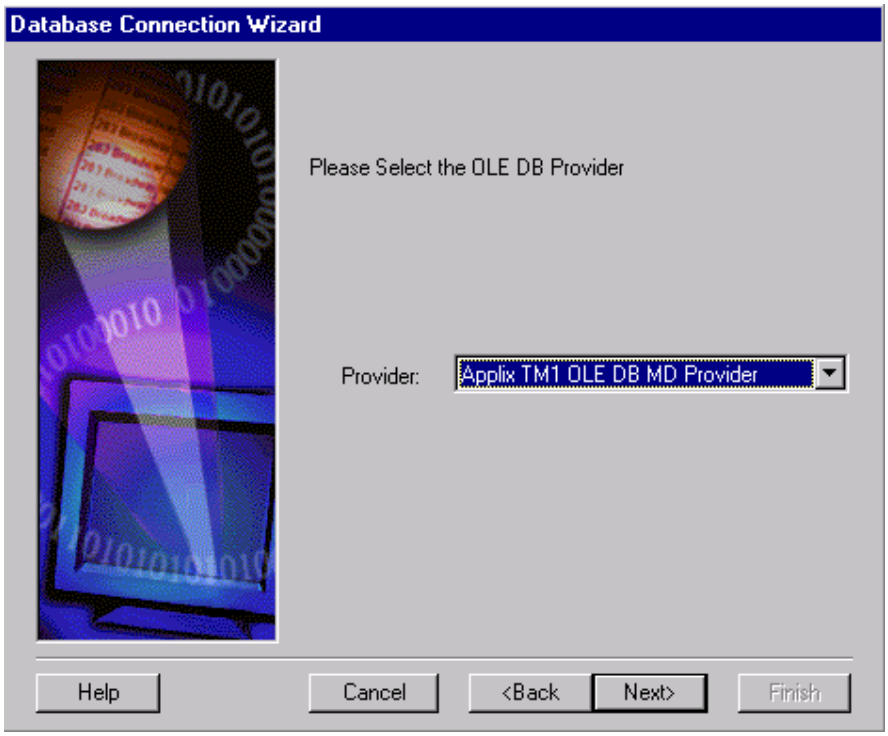

3. Once this is establish then bring up BRIO click OK



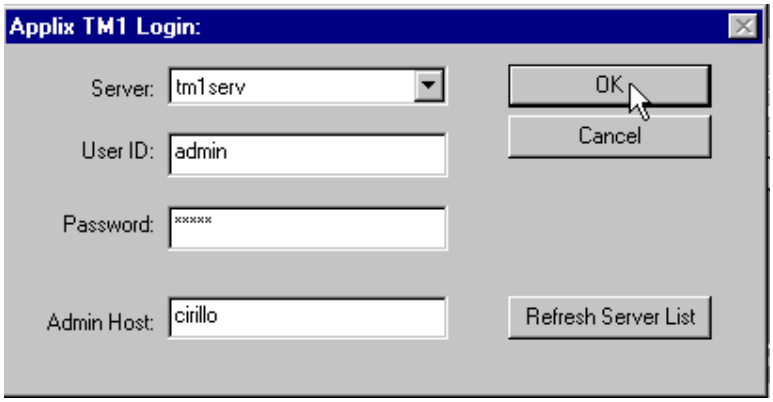

4. Next screen select OLE DB for both options then click next



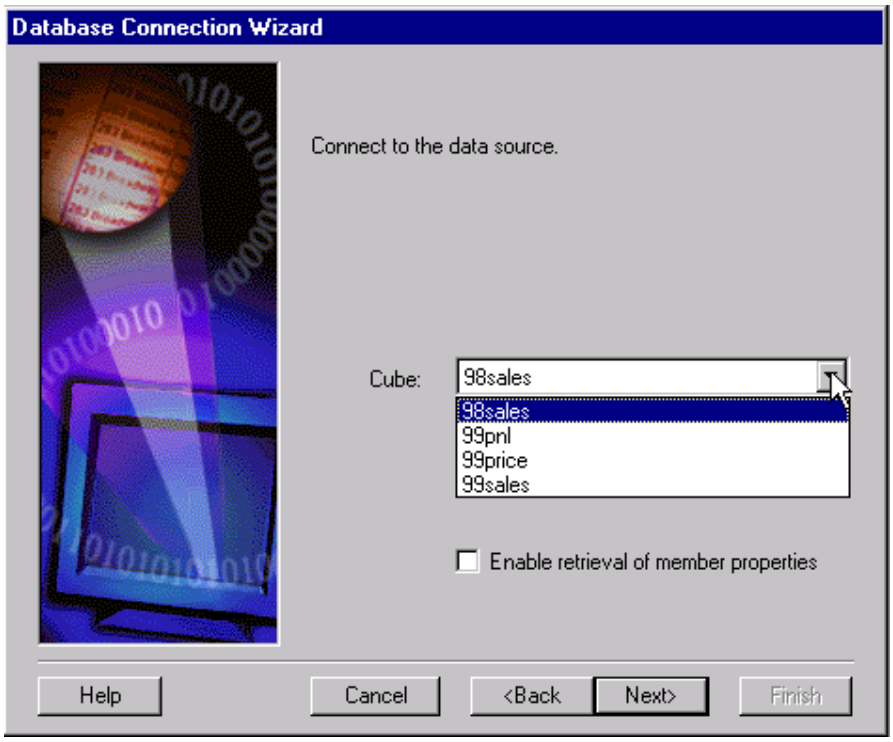

5. Next select the correct provider Applix Tm1 OLE MD Provider



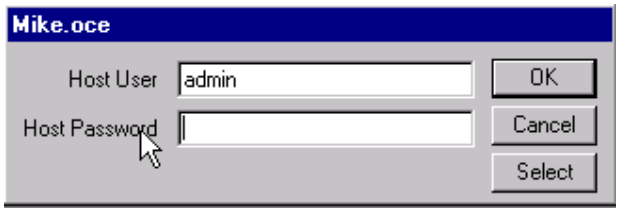

6. If done correctly you should get a login dialog box. Use same login as you do when connect up to the Tm1 server.



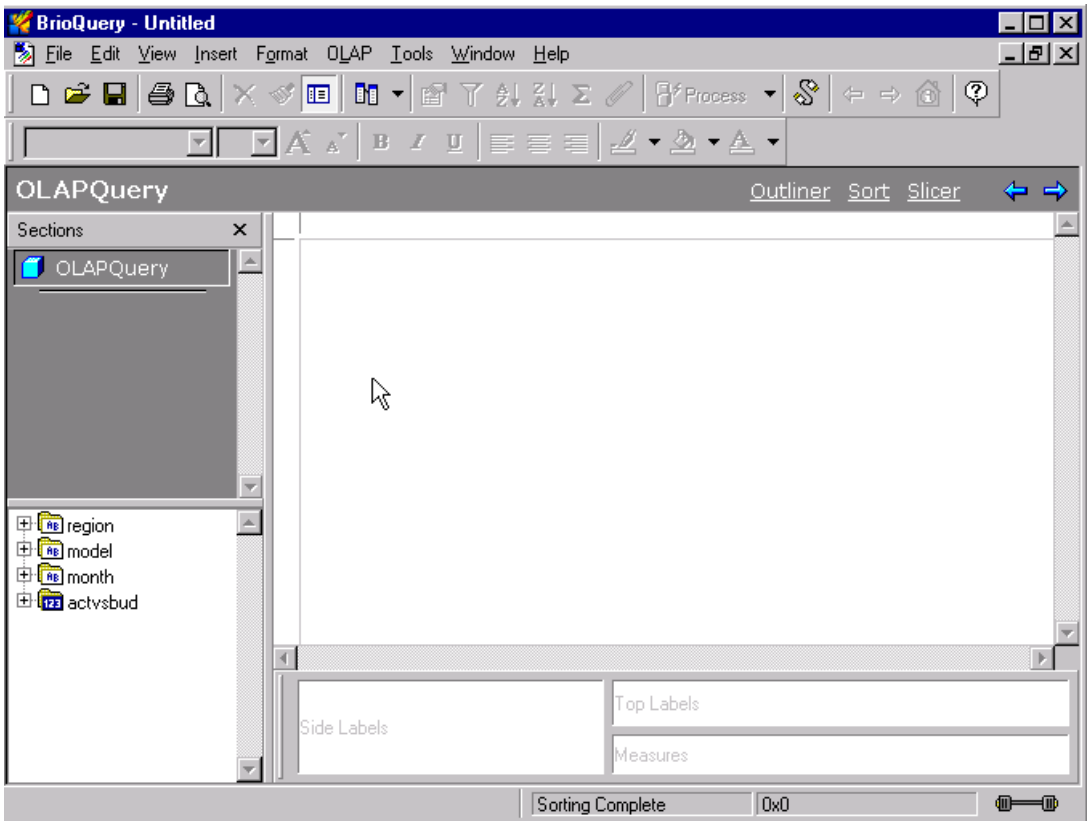

7. Once the correct information has been entered click OK and your cubes should be visible in the drop down menu.




8. Choose a cube and click Finish – Brio comes back asking if you want to save the OCE connection – say YES and give it a name. Ex. Mike.oce
9. A dialog box should now appear asking you to login with a password. You want to use your login and password for the Tm1 server




10. If everything is done correctly you should see the following screen




## 8 How to connect TM1 to Lotus Notes via Turbo Integrator

- For this document Lotus Notes was loaded on an NT Server and steps were performed "locally".
- What does this mean? This means that the Lotus DB tables come straight from this machine. The ODBC connection looks for .NSF file (Lotus tables) on this machine ONLY.



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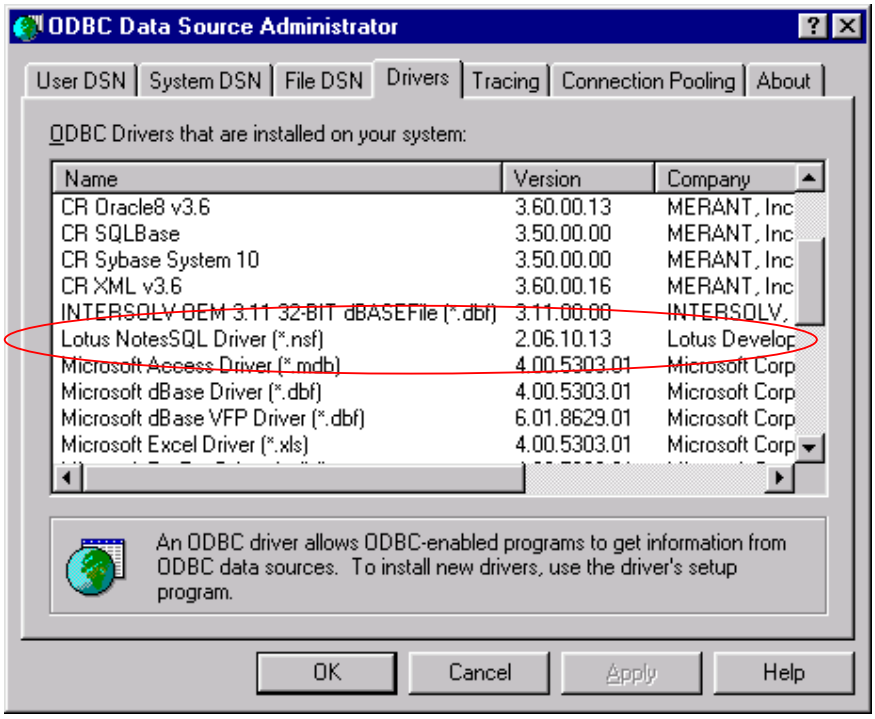
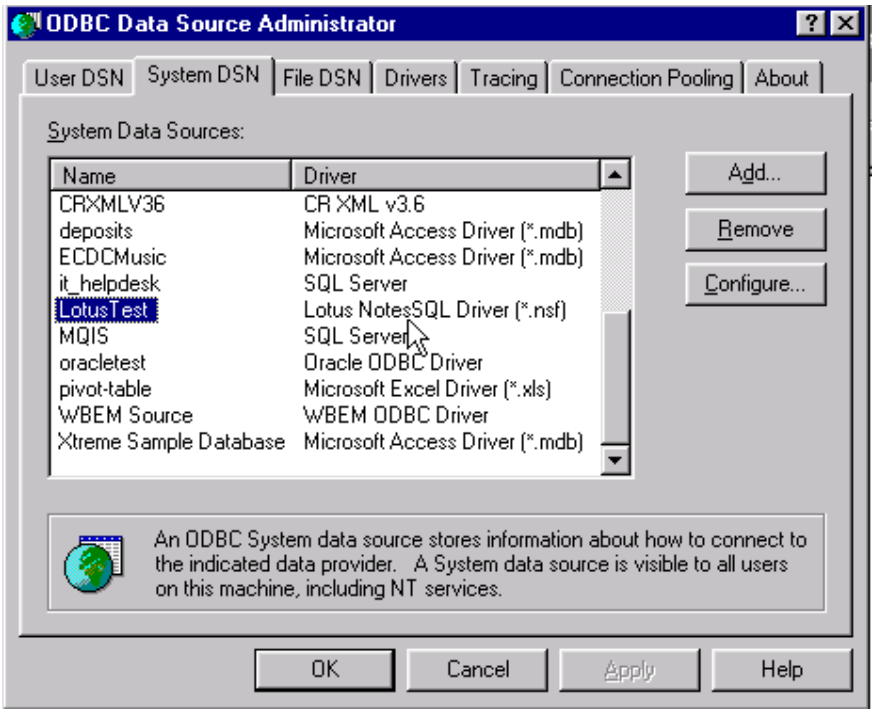
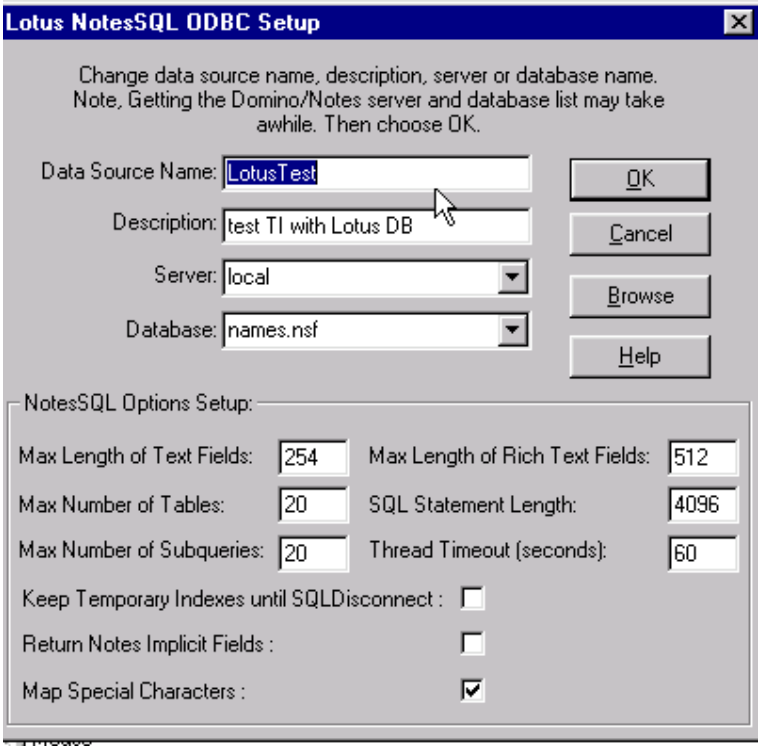
1. Make sure you have a Lotus driver installed




2. Create a **System Data Source** ODBC Connection to your Lotus DB from Start
   ->Settings-> Control Panel. Here is my example:



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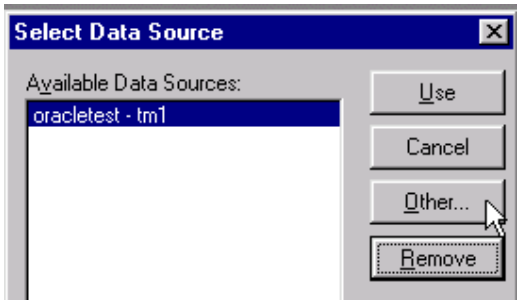
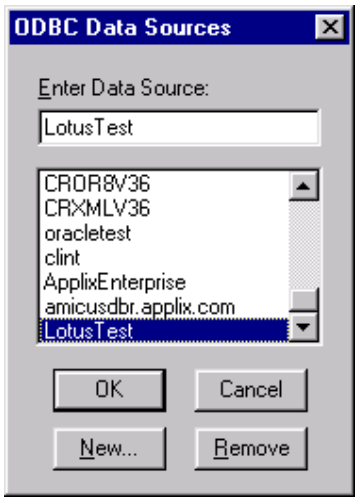
3. The msqry32.exe is a good tool to test this connection.

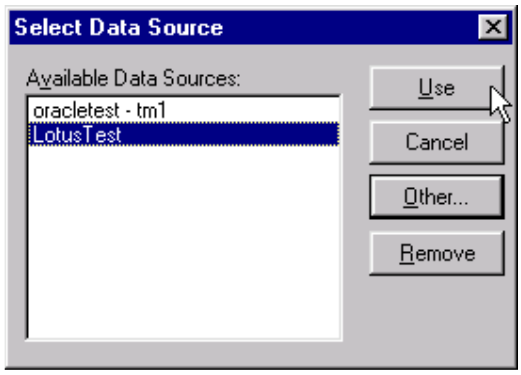
File->New->then choose Other



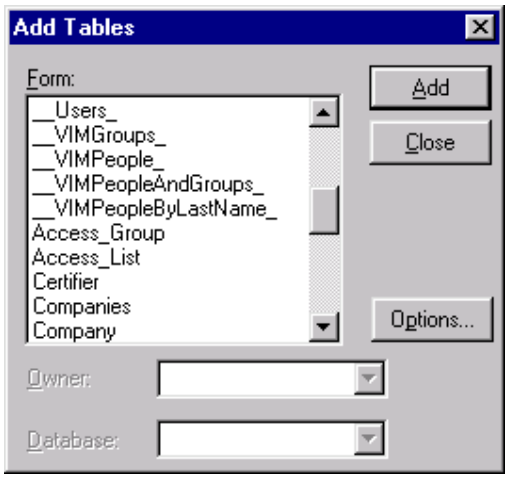
Choose Lotus ODBC connection



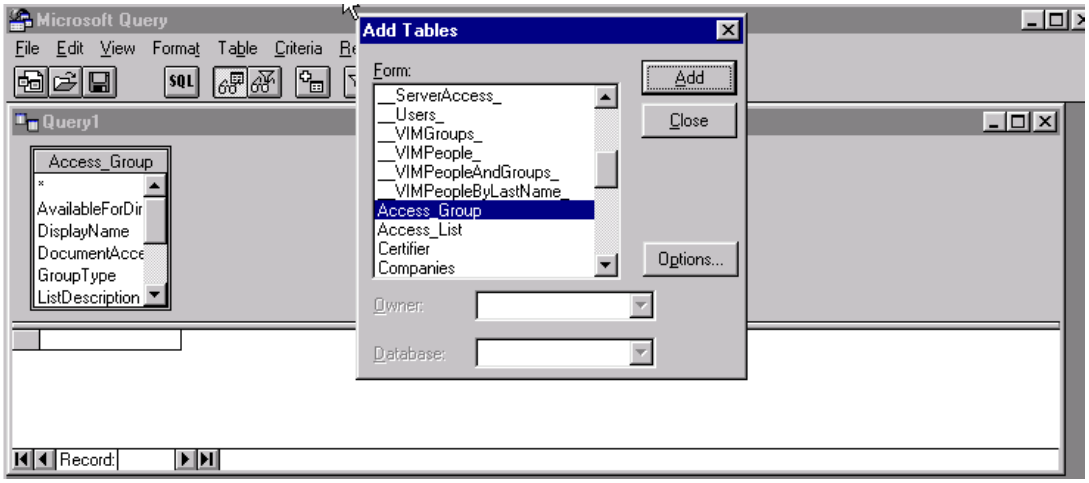

Then click Use




A list of tables should appear. Once you get this you know you have established a good connection.




To complete this, click on Access_Group table and hit Add.




Double click on the * and the table will fill in



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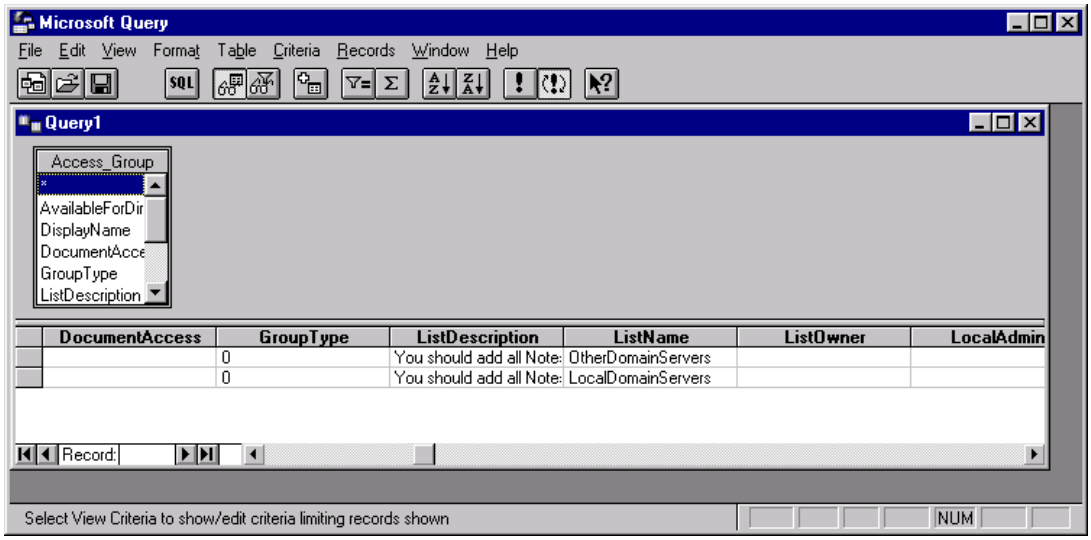
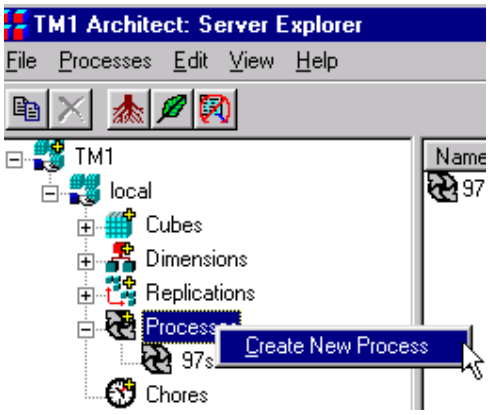
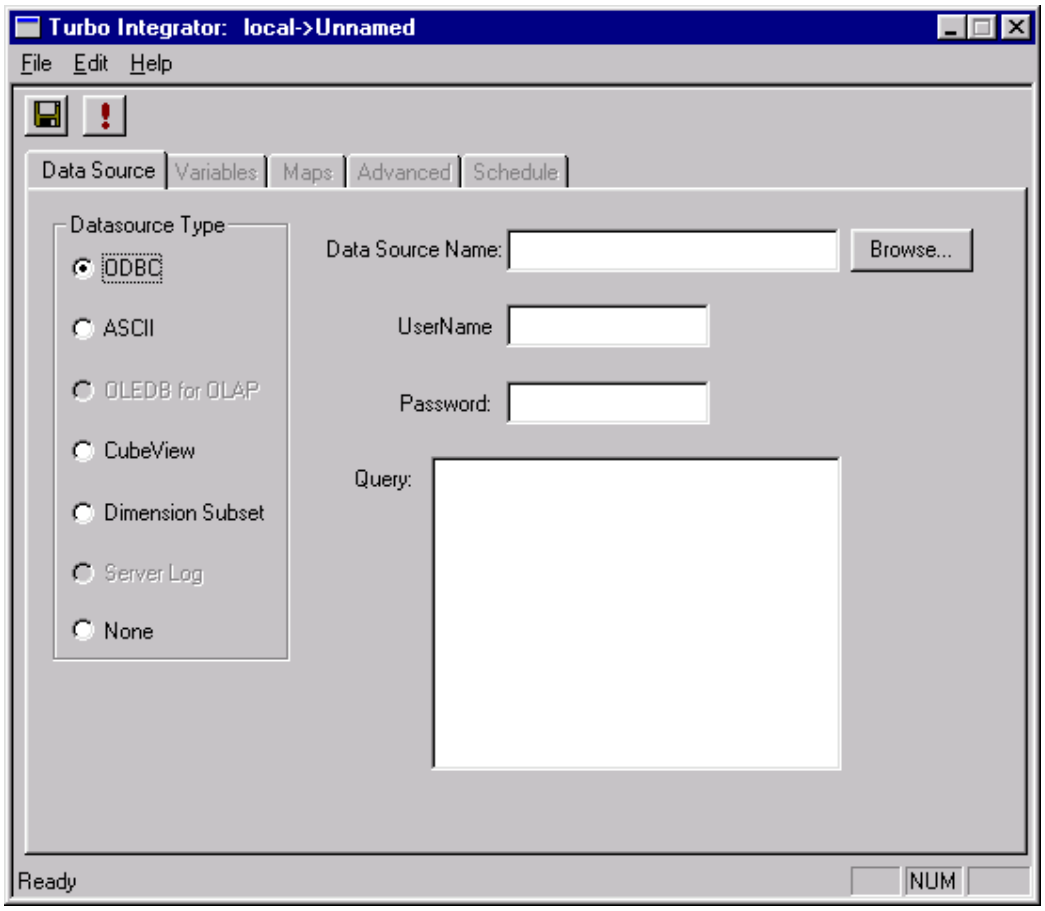


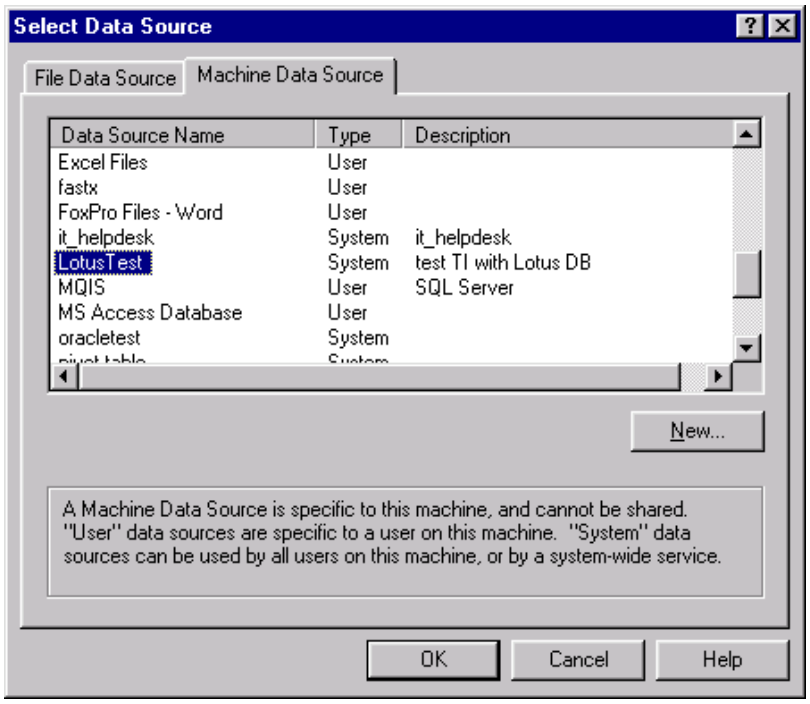

4. Now to Connect Tm1's Turbo Integrator with the Access_Group table.
5. In Tm1 Architect right click on Process and click on Create New Process



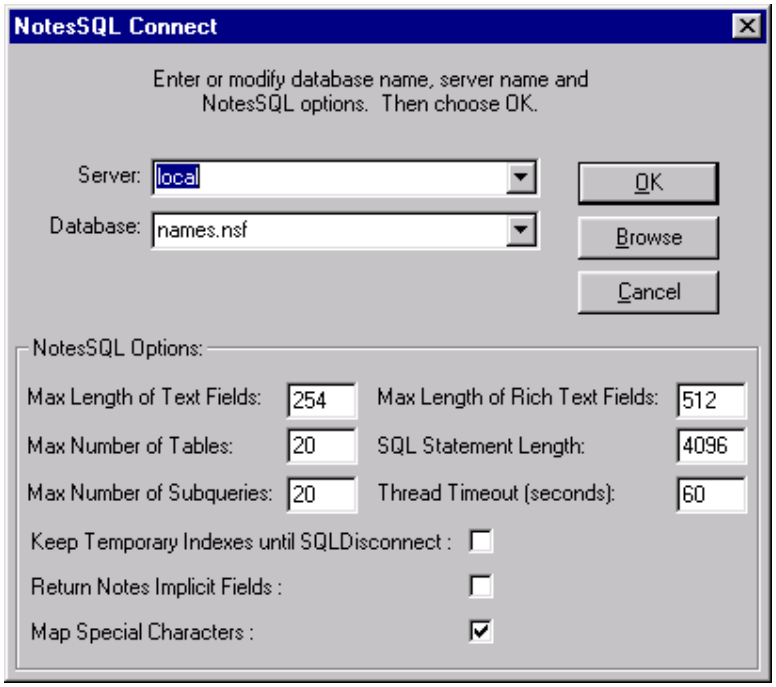

6. Choose ODBC as your data source



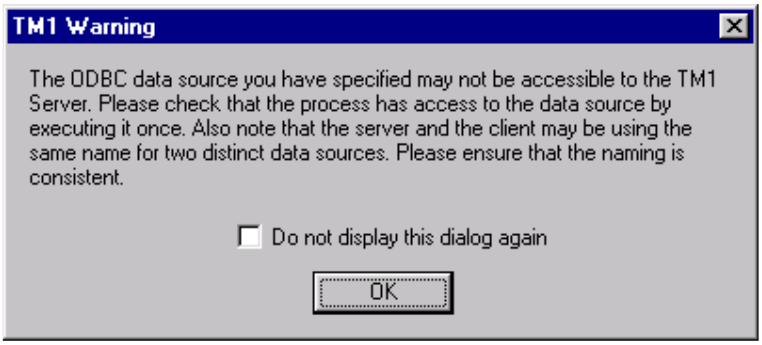

7. Browse for your Lotus ODBC connection under the Machine Data Source tab



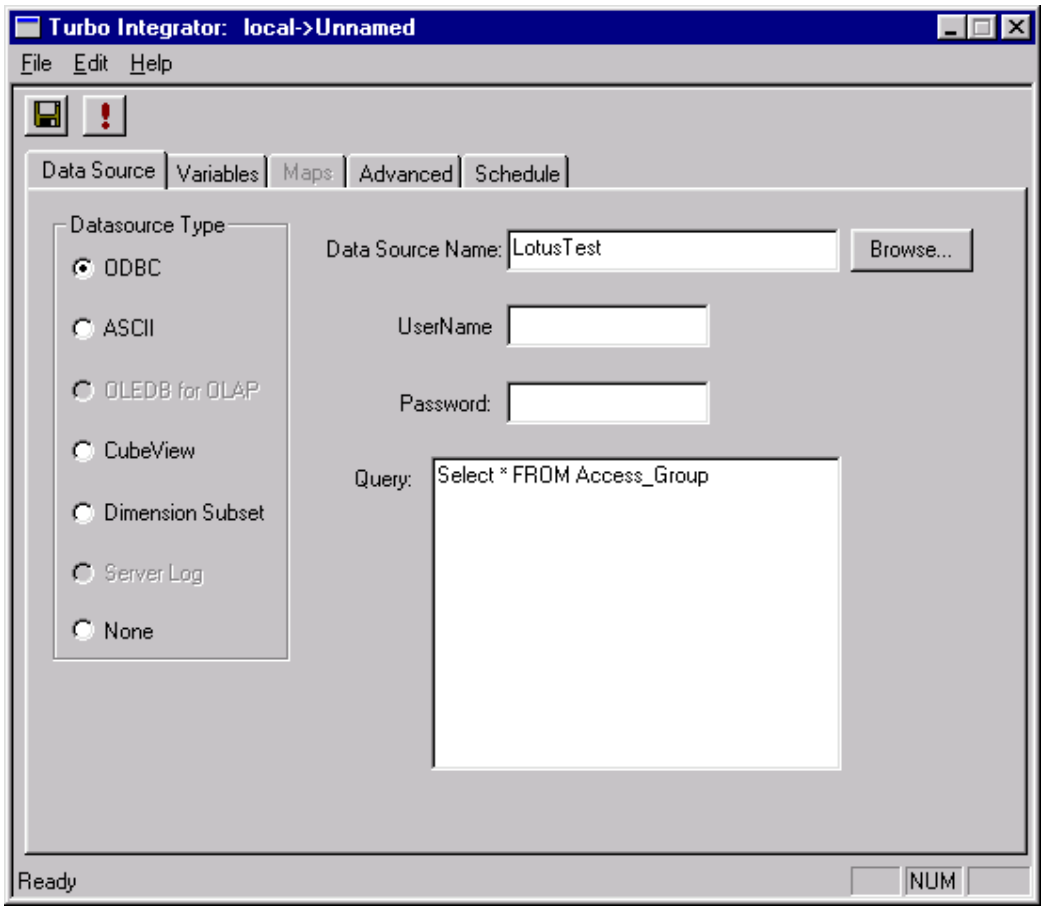

8. The following screen should appear, you can change any details if necessary



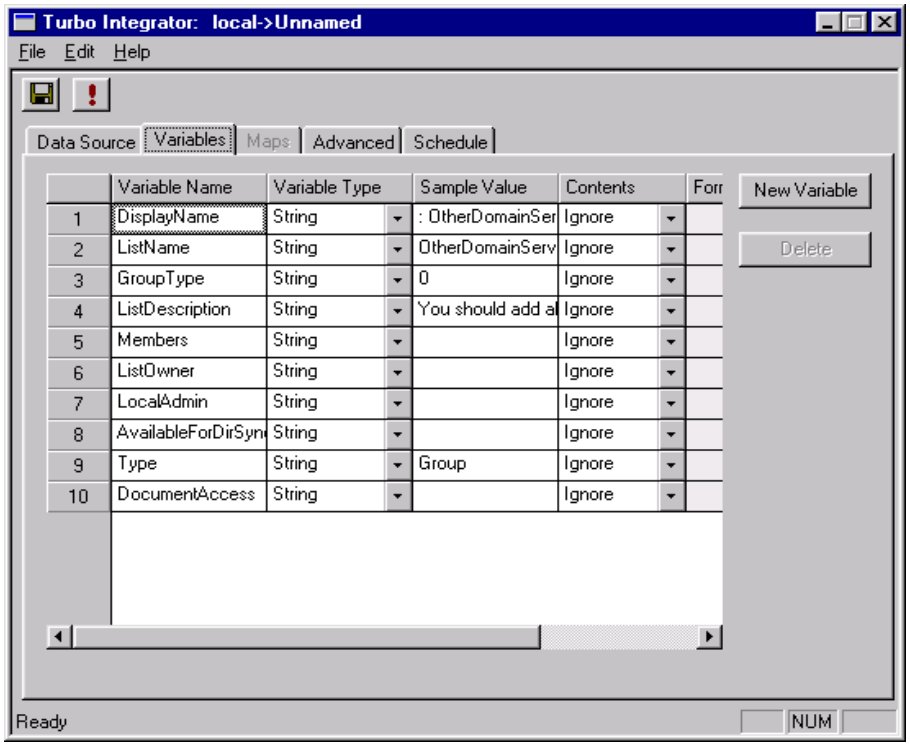
9. You may get this warning dialog box it is just a precaution – click OK




10. Type in a simple select statement that will pull in data from the table you wish




11. If everything is setup properly you should see data in your Variables tab


Turbo Integrator: local->Unnamed
File Edit Help
Data Source Variables Maps Advanced Schedule
Variable Name Variable Type Sample Value Contents Forr
1 DisplayName String : OtherDomainSer Ignore
2 ListName String OtherDomainServ Ignore
3 GroupType String 0 Ignore
4 ListDescription String You should add al Ignore
5 Members String Ignore
6 ListOwner String Ignore
7 LocalAdmin String Ignore
8 AvailableForDirSyn String Ignore
9 Type String Group Ignore
10 DocumentAccess String Ignore
New Variable
Delete
Ready
NUM